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ABSTRACT

This study investigated the relationship between psychological sense of community and various personal and contextual factors (e.g., gender, race, major department and residence) at a public university in the eastern United States. Undergraduate students (N=2,047) responded to a questionnaire targeted to a student body of 10,500 that assessed demographics, sense of belonging, and departmental climate. The results suggested that students who differ from the norm, are newer to campus, and have fewer opportunities for interaction on campus are likely to experience less sense of belonging than their counterparts. Factors which enhance belonging are advanced student status, department unity, and department social activities. In a comparison of a predominantly female and a predominantly male department, the most striking finding is that both men and women students in the predominantly female department report a greater sense of belonging. When women students had the opportunity to associate with women faculty, they appeared to do so more than men. Colleges and universities have a responsibility to adapt their environments to include students of diverse backgrounds and life situations rather than expecting non-normative students to fit themselves into narrow or inaccessible settings that do not affirm who they are. The strong positive association between department unity and sense of belonging to the department point to the need for community building efforts at the departmental level as well as campus-wide. (ABL)

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The Determinants of Quality of Life on College Campuses

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Running Head: QUALITY OF LIFE ON CAMPUS

Note: Authors' contributions were equal; order of authors' names was randomly determined.

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Abstract

This study investigates the relationship between psychological sense of community and various personal and contextual factors (e.g., gender, race, major department and residence) at a public university in the eastern United States. All 10,500 students received a questionnaire assessing demographics, sense of belonging, and departmental climate. Questionnaires were returned by 2,791 students. Only the undergraduate responses (N=2047) are used in the analyses reported here. The results suggest that students who differ from the norm, are newer to campus, and have fewer opportunities for interaction on campus are likely to experience less sense of belonging than their counterparts. Factors which enhance belonging are advanced student status, department unity, and department social activities. In a comparison of a predominantly female and a predominantly male department, the most striking finding is that both men and women students in the predominantly female department report a greater sense of belonging.

Results are discussed in terms of their implications for campus-wide interventions that support diversity and small-scale interventions at the department level.

The Determinants of Quality of Life on College Campuses

Introduction

Life on college campuses is increasingly stressful for students in the United States. According to the most recent Carnegie Report (1990), students are experiencing excessive exposure to substance abuse, racism, sexism and a diminished commitment to teaching and learning. The loss of a sense of community has been identified as a major factor in the deterioration of quality of life for college students (Carnegie Report, 1990). Little is known, however, about what factors contribute to a sense of community and belonging on college campuses.

The study reported here investigates potential determinants of sense of community on one college campus--a large public university in the northeastern United States. The goal of the study was to identify personal and contextual factors that are critical to the quality of college life and thereby provide new directions for enhancing a sense of belonging for all students within the college community.

The "psychological sense of community" is a

concept originally developed by Seymour Sarason in the early 1970's (Sarason, 1974). Psychological sense of community is qualitatively different from simple membership or residence in a community and has been defined as follows: "Sense of community is a feeling that members have of belonging and being important to each other, and a shared faith that members' needs will be met by their commitment to be together" (Chavis, Hogge, McMillan & Wandersman, 1986, p. 25).

Research has been done to refine and operationalize this important theoretical concept (Glynn, 1981; Chavis, Hogge, McMillan & Wandersman, 1986; McMillan & Chavis, 1986). Factors that have been positively associated with psychological sense of community include: perceived similarity with others; expected length of residence; satisfaction with the community; and the number of neighbors a person can identify by first name (McMillan & Chavis, 1986; Wandersman, Florin, Friedman & Meier, 1987). It has also been found that a sense of community is positively correlated with community participation, problem-focused coping behaviors and a sense of

emotional sharing and support (Bachrach & Zautra, 1985; McMillan & Chavis, 1986). Although not essential, proximity and face-to-face contact also appear to enhance psychological sense of community (Heller, Price, Reinharz, Riger & Wandersman, 1984).

Much of the research on psychological sense of community has been conducted in neighborhood settings. In applying this concept to college settings, some distinctions should be made and certain assumptions modified. As noted above, expected length of residence has been associated with greater psychological sense of community in neighborhoods. In college settings where members enter with a shared expectancy of a time-limited stay and where normative length of stay is a visible sign of success, different relationships might be expected. Psychological sense of community within these settings, then, is likely to be greater for more advanced students than for newer community members, despite the fact the future expected stay is shorter for the more senior students. In neighborhoods, members are defined by their residence in a geographically circumscribed place. In college

settings, membership is not determined on this basis. Many students do reside in a geographically circumscribed space, but others are physically distant. Living on or off campus may be related to sense of belonging with on-campus students most likely experiencing the greater sense of belonging. Given, however, that college typically represents a transition away from childhood residence to the larger social world, where students live may not be as important to sense of belonging as with whom they live while going to school. Students who live away from their parents and home of origin may have greater opportunities for involvement in college life than those living with their families. Living away from home is, thus, also expected to be associated with a greater sense of belonging than is living with family of origin.

The literature on psychological sense of community and the Carnegie Report (1990) suggest that groups of students who are different from the norm are likely to feel less sense of belonging than are those who more closely approximate the norm. Thus, it may be expected that minority students and older returning students

will report less sense of belonging than majority and traditional age students. This literature also suggests that students who have more opportunities for social interaction will feel a greater sense of community than those who have fewer opportunities for involvement in campus life.

The relationship between gender and belonging is less clear. Some have argued that college represents the peak of women's educational opportunity and freedom of expression and that, at least in some ways, women are experiencing more equitable treatment than at other ages or in other settings (Steinem, 1983). On the other hand, although not a minority group proportionately, women may well experience less psychological sense of community considering that academia is rooted in male values (Fuehrer & Schilling, 1985; 1988); the college classroom still represents a "chilly climate" for women (Hall & Sandler, 1982; Seery & Clossick, 1991); and sexism, sexual harassment and date and acquaintance rape are commonplace (Fitzgerald et al., 1988; Hirsch, 1990; Koss, Dinero, Seibel & Cox, 1988; Paludi, 1991; Sanday, 1990).

There may also be more subtle climate factors that influence the college experience for different gender and cultural groups. For example, Fuehrer and Schilling (1985) argue convincingly that discrimination against women and minority groups comes in the unquestioned inclusion of masculinist and dominant values, styles and curricular content that are standard fare in academe. Climate would also be enhanced for women and minority students by access to didactic material and faculty who appreciate, understand, and respect women's experiences and who value multicultural experience. Similarly, the opportunity for women to work with female faculty in as high percentages as male students work with male faculty would also affect the climate experienced by students. Further, the possibility or lack of possibility of using interactive and collaborative as compared with competitive, individualistic approaches is also an important part of the college and classroom climate. Thus, it is expected that white women and minority students of both genders will experience less sense of belonging than white males.

All of these hypothesized relationships between individual characteristics and belonging are most likely mediated by qualities of the settings students frequent. The academic department, or major, may be considered the most important unit of college life because it is the setting where students take the majority of their classes, and typically have the most opportunities to interact with both faculty and peers. Important elements of departmental climate include not only the issues of inclusiveness and representation mentioned above, but also more general factors such as sense of unity among department members, opportunities to engage in departmental activities, faculty respect for students, and perceived reasonableness of student workload.

In summary, this study looks at how distance from the norm, opportunities for social contact and departmental climate are related to students' sense of belonging on college campuses. Of particular interest is the relationship between gender and belonging due to the contradictory expectations. These questions were initially explored by looking at campus-wide survey

responses. The issue of climate is looked at in more depth by comparing the experiences of students in two quite different departments. The two departments identified were situated on physically separate campuses, one housing sciences and the other arts and humanities. The departments were selected to maximize differences in academic climate and student gender ratios.

Method

Participants

The participants in the study were students at a large state university in the northeast. The research reported here is part of a larger survey on the quality of life and the university. The current study is based on analysis of the responses received from undergraduate students.

The students attending the University come from predominantly working class families. Many of the students still live at home with parents and are the first generation in their families to attend college. The student body is predominantly male (62%) and the majority of students are Caucasian (84%). Asians,

African Americans and Hispanics each comprise less than 5% of the student body; other ethnic minority groups (e.g. American Indians, Cape Verdians) together constitute another 5%. Most students are of traditional college age, but the university attracts a relatively large population of older returning students through a special program which provides support for reentry.

Survey Instrument

The Social Experiences Questionnaire was designed to probe several aspects of students' lives on campus. The questionnaire assessed demographics, self perceptions, sense of belonging, departmental climate, incidence of sexual harassment and coping strategies.

The questionnaire sections relevant to the current investigation included information about gender, age, race, student status (i.e., first year, sophomore, junior, senior), living situation and major area of study. In order to assess sense of community both within students' major department and among friends and family, questions were included concerning their sense of connection to a major department and to general

social supports while at college. The rating of perceived belonging to a department will be referred to as "departmental belonging" and is considered a measure of students' psychological sense of community with respect to their major department. The social support ratings can be seen as measures of the extent to which students felt a sense of belonging to a general support network while in college. Both sense-of-belonging questions were scored on a scale of 1 to 7, with 1 representing non-inclusion and 7 representing full inclusion. In addition, there were three questions that asked participants to estimate the percentage of female versus male peers, faculty and staff that they encounter in their daily lives. Gender ratio questions were evaluated on a scale of 1 to 7, with 1 representing 100% males and 7 representing 100% females.

A later section of the survey assessed the climate of the students' major department. A new scale was developed to measure such factors as sense of unity among faculty and students, department-wide activities, faculty respect for students, student workload, gender

biases expressed by faculty, and coverage of women's issues in the curriculum. Several examples of these items are shown in Table 1. All climate items were

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Insert Table 1 about here

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scored on a scale of 1 to 5, with 1 representing "disagree strongly" and 5 representing "agree strongly." The climate scale expands upon the notion of the gender-based "chilly climate" in the classroom (Hall & Sandler, 1982).

Procedure

The questionnaire was mailed to the homes of all students (N=10,500) enrolled at the university during the fall of 1990 with addresses within the United states. An attached cover letter explained the voluntary nature of the survey and assured confidentiality. A postage-paid envelope was enclosed. In order to increase the return rate, follow-up post cards were sent approximately two weeks after the initial survey.

Results

Profile of respondents

Completed surveys were received from 2,791 of 10,500 students, representing a return rate of approximately 27%. Return rates of 25-30% are not uncommon for large scale surveys that include both genders and ask questions about unpleasant experiences such as harassment. Only the undergraduate respondents (N=2047) were included in the present analyses. A profile of the undergraduate respondents was constructed from the demographic information provided by the respondents. Female students comprised 49.5% of the group; male students comprised 50.5%. The majority of the respondents (76.9%) were within the traditional age range defined for undergraduate students (that is, between the ages of 17 and 22 years). For the remaining 21.7%, the frequency of respondents declined with increments in age. Approximately 90% of the students were Caucasian; of the remainder, only 6% indicated race, and these were distributed approximately equally across several racial and ethnic groups including Asians, African-Americans and

Hispanics. Almost half of the respondents (44.5%) lived at home with their family of origin; the on-campus residents comprised the second largest group (27.8%); students living off campus alone or with peers comprised the third group (22%); and students living at home with partners and/or children made up the fourth group (9.3%). Only 17.4% of the respondents were first year students. The remainder of the respondents were distributed approximately equally across the sophomore, junior and senior classes.

Analyses of sense of belonging by student groups

The first analyses performed were intended to determine whether particular groups of students were more or less likely to feel a sense of belonging to the university community than other groups. The first analysis compared students' sense of belonging to their academic department across gender, race, age, residence and student status (i.e., year in school). It should be noted that non-Caucasian students were pooled into a single group and compared to Caucasian students to analyze the effects of minority status because the numbers of respondents within each minority racial

group were extremely low. For the analysis of age, traditional age students (17 to 22 years) were compared to students over the age of 25. For the analysis of residence groups, students living in campus residence halls were grouped with students living off campus but away from their families of origin. These students were compared to students living with their families of origin.

The sense of belonging to an academic department was greater for students living away from home than for those living with their families of origin, $F(1, 1555) = 37.84$; $p < .001$. Female students reported a greater sense of departmental belonging than did male students, $F(1, 1555) = 8.89$; $p < .005$. Race and age, however, did not play significant roles in determining academic belonging. In addition, sense of belonging to an academic department increased significantly with student status ($F(3, 1555) = 13.96$; $p < .001$) such that more senior students expressed greater sense of belonging. These results are summarized in Table 2.

Insert Table 2 about here

The same groups were compared with respect to their perceptions of belonging to a general support network while at college. The results, which are summarized in Table 3, suggest that minority students

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Insert Table 3 about here

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reported feeling less connection to a support network while at college than did Caucasian students, $F(1, 1555) = 10.50$; $p < .005$. Similarly, students living at home with families of origin were less likely to report a sense of social support while at college than were students living away from home, $F(1, 1555) = 10.36$; $p < .005$. Lastly, male students were less likely to report belonging to a support network than were female students, $F(1, 1555) = 18.48$; $p < .001$.

Factors which contribute to a sense of departmental belonging

While the first set of analyses addressed questions about traditionally more marginal groups, the next series of analyses sought to identify what demographic and climate factors contribute to a sense of departmental belonging. Since the overall survey focused on the quality of life on campus and the climate within departments, it was not deemed appropriate to do a parallel analysis of predictors for sense of belonging to a general support network.

A stepwise multiple regression analysis was performed to determine which of the following factors predict a sense of departmental belonging: student status, departmental unity, departmental activity, faculty gender bias, inclusion of gender-related items in the curriculum, respect for students, student workload, proportion of female/male students encountered in environment, and proportion of female/male faculty encountered in environment. Several of these factors, including gender bias, gender-related curriculum, and respect for students

were obtained by pooling conceptually-related items on the climate scale. Possible scores for composite climate factors ranged from 1 to 5, with higher numbers representing higher evaluations of each factor.

Three factors emerged as significant: perceived unity in the department; student status; and the amount of social activity in the department. A higher sense of unity, more senior student status and a greater number of department-sponsored events for students all seem to contribute significantly to individuals' sense of department belonging. (For this model, $R = .548$, $F(3,1658) = 238.02$; $p < .001$).) A complete summary of the multiple regression analysis as well as the intercorrelations between variables are presented in Tables 4 and 5, respectively.

Insert Tables 4 & 5 about here

Comparison of two departments with different gender-ratios

The purpose of the following analysis was in part to confirm the validity of the climate scale, and, more

particularly, to determine whether there was a relationship between the gender-ratio of the department and students' perceptions of the departmental climate and sense of belonging by gender. Specifically, we wished to determine whether female students in a predominantly male department would perceive their environment differently from male students and conversely, whether male students in a predominantly female department would perceive their environment differently from the female students. Additionally, we wished to determine whether "token" female students differed in sense of belonging and perception of departmental climate from "token" male students.

Two departments of approximately equal size but inverse gender ratios were selected for comparison. In one department, 78% of the majors are female; in the other, 88% of the majors are male. Respondents from the predominantly female department included 130 women and 26 men, while respondents from the predominantly male department included 29 women and 132 men. These departments also differed with respect to curriculum content and location. The predominantly female

department is in the Liberal Arts and is housed on a more female-populated campus. The predominantly male department is among those situated on another campus which houses the more male-populated sciences, engineering, and computer sciences. For the purpose of simplicity, the predominantly female department will be referred to as Department F, and the predominantly male department will be referred to as Department M.

A 2 x 2 between-subject multivariate analysis of variance was performed on nine dependent variables, including departmental unity, departmental activity, faculty gender-bias, inclusion of gender-related issues in curriculum, faculty respect for students, student workload, proportion of female/male students encountered, proportion of female/male faculty encountered, and departmental belonging. The independent variables in this analysis were gender and department. The results of this analysis showed significant effects of department using Wilks' Lambda, $F(9, 306) = 46.7$; $p < .001$. The effect of gender showed a weaker effect, $F(9, 306) = 2.36$; $p < .05$. A significant interaction between department and gender

was also found, $F(9, 306) = 2.70$; $p < .01$. These results are summarized in Table 6. Because omnibus significance was obtained for main effects of both independent variables as well as the interaction of the

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Insert Table 6 about here

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two variables, it was possible to further analyze the contributions of the individual dependent variables. To this end, a stepdown analysis was performed on the individual variables. To perform this analysis, the dependent variables were prioritized from most to least important based on apriori judgements. Each variable was evaluated after the contributions of earlier variables had been statistically eliminated (Tabachnick & Fidell, 1989).

All dependent variables except faculty respect for students and student workload, contributed significantly to the difference between departments. The greatest effects were found in degree of association with female students (stepdown $F(1, 307) = 114.8$; $p < .001$); degree of association with female

faculty (stepdown $F(1, 306) = 32.729$; $p < .001$); and with the extent of discussion of gender-related material in courses (stepdown $F(1, 310) = 110.9$; $p < .001$). Not surprisingly, students in Department M reported they personally encountered a lower proportion of female students and faculty as well as less discussion of gender issues than did students in Department F. A complete summary of the stepdown analysis is provided in Table 7 and the departmental mean scores are provided in Table 8.

Insert Tables 7 & 8 about here

Two dependent variables, proportion of female faculty encountered and perceptions of faculty gender bias, produced the greatest differences between male and female students. Across both departments, female students reported associating with higher proportions of female faculty than did male students (stepdown $F(1, 306) = 6.47$; $p < .05$). Female students also reported greater gender-bias in the classroom than did male students (stepdown $F(1, 311) = 11.52$; $p < .005$).

The same two dependent variables also produced significant interactions between gender and major. Women students in Department F reported relatively greater association with women faculty than did men students in that department. In Department M, however, contact with women faculty was equivalent for men and women students (stepdown $F(1, 306) = 9.19$; $p < .005$). Further, women students in Department M reported significantly greater levels of faculty gender bias than did any of the other groups (stepdown $F(1, 311) = 7.55$; $p < .01$). As noted above, marginal means, cell means and significance levels are presented in Tables 7 and 8.

Discussion

In summary, the results of the current analysis show that students who differ from the norm, students who have shorter histories on campus, and students who have fewer opportunities to interact on campus are likely to experience a diminished sense of belonging to a network that supports their life at the university and, in some cases, to their academic departments as well. Factors which directly contribute to a positive

sense of departmental belonging are advanced student status, departmental unity, and social activities in the major department. In a comparison of two specific departments, one composed predominantly of women students, and the other of men, women students reported a greater degree of gender-bias in the classroom than did men students, particularly women in the predominantly male department. Further, when women students had the opportunity to associate with women faculty, they appeared to do so more than men. Women students in the predominantly female department, with approximately equal numbers of women and men faculty, reported more contact with women faculty than did their male counterparts. In contrast, women in the predominantly male department did not report greater contact with women faculty than their counterparts, probably due to the very low representation of women faculty in that department. Despite these findings, no gender differences were found for sense of departmental belonging. There were differences, however, between the departments, with students in the predominantly female department reporting a greater degree of

departmental belonging.

Groups that are new (e.g., first year students) or that differ from the typical student profile with respect to race, age and living arrangement feel less belonging than others. Since these students are important members of the campus community, it is imperative that global, campus-wide interventions be designed to actively welcome and support all students, particularly non-normative groups. It is not enough to simply avoid excluding individuals and groups from college life. There must be visible, affirming activities that create inclusiveness, and they must be tailored to encourage access in terms of location, scheduling and multi-cultural content. Colleges and universities have a responsibility to adapt their environments to include students of diverse backgrounds and life situations rather than expecting non-normative students to fit themselves into narrow or inaccessible settings that do not affirm who they are.

Activities fostering belonging would involve different components for different groups. For newly entering students, orientation activities and peer-

support programs that include community-building components are in order. An intervention supporting older, non-traditional students might take the form of a daytime drop-in center designed to foster social support. The center hours could be set to fit with the demands and life situations of older adults who often work while in school. Another intervention might take the form of campus-based affordable child-care to permit students with children to attend extra-curricular and academic activities. For students of color, curricular material and cultural experiences based on diverse heritages and multiple non-western traditions are essential. Students living at home with parents need alternative ways to participate in group activities. Attention must be paid to scheduling of opportunities for social interactions and skill building workshops so that they will fit commuter schedules and home-based demands. Events that involve parents and family might also draw these students and enhance their sense of belonging. The important factor is that the interventions should fit the life conditions and cultural experiences of the particular

group. In order to increase the appropriateness of interventions and their likelihood of success, members of the distinct constituencies themselves should be involved in the planning and the implementation of the efforts.

The strong positive association between department unity and sense of belonging to the department point to the need for community building efforts at the departmental level as well as campus-wide. Similarly, the relationship between department social activities and belonging suggests that multiple opportunities for contact, including informal spontaneous ones, are important for creating and sustaining a psychological sense of community. Special efforts should be made to actively include first year students and, by generalization, transfer students, because they are likely to be experiencing less belonging here as well as in the wider campus community. The department is a smaller unit, which--by virtue of its size and specialization--is better suited for this socialization function than is the university as a whole. Departmental-level interventions should build on the

particular content of the discipline given that this is a pre-existing commonality that members, both faculty and students, share.

The analysis of the effects of gender differences on sense of belonging are complex. The fact that women report a greater sense of belonging may be related to several factors including, for example, a more relational orientation resulting in more social contact and support, a greater valuing of community resulting in its greater salience, or merely responding to the survey in socially expected ways. Whatever the reasons, it is surprising that women as a group report greater belonging despite the gender bias which women experience--especially in the predominantly male department. These contradictory findings may well parallel the contradictions of the larger social reality which women routinely confront. Nonetheless, it behooves university administrations and department faculty to foster the efforts of women students in all departments, especially those which are predominantly male. Such support can be provided through mentoring programs, informal gatherings of faculty and students,

talks on unique issues faced by women in particular disciplines, and expanded coverage of women's issues in courses across the university. The ultimate goal would be to encourage full representation of both women and men in all academic and nonacademic areas of the university, so that women's styles and values are fully integrated into the climate and structures of the institution.

If the University is viewed as a community, the departments may be considered the "neighborhoods" and heart of the university. Every student is eventually involved in a department, while only a relatively small percentage of students are involved in social clubs, sports or consistent extra-curricular activities. Therefore, we must recognize the critical role that departments can play in community building and students' well being.

The striking differences found in perceived climate and sense of belonging in gender-stratified departments highlights the importance of these contexts. It clearly illustrates the existence of distinct "niches" or sub-cultures within the larger

university community. Small-scale, departmental-level interventions must occur along with campus-wide efforts targeted at diverse groups and early transitional supports for new students. Each of these types and levels of intervention is important, and, of course, will interact with and influence one another.

We began with concerns about the deterioration of the quality of life on college campuses, including the prevalence of racism and sexism and the diminished sense of community. Our results have explored these concerns and provided information about how to encourage inclusiveness and a sense of belonging. The results remind us that we must be concerned both with people and with places--with students of varied backgrounds and life circumstances and with the distinct environmental contexts where they are living and learning. Most importantly, our report highlights the relevance of psychological sense of community to college life and the importance of creating and sustaining it for all students.

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Table 1

Sample climate items

Topic	Sample Item
Unity	There is a feeling of unity and cohesion in the department.
Activity	There are a lot of spontaneous social activities in the department.
Respect	Faculty usually compliment a student who does something well.
Gender-Curriculum	Faculty discuss material related to gender or sex roles in class.
Gender-Bias	Faculty are more likely to choose men for advanced work
Workload	Faculty expect far too much from students.

Note. All items are scored on a scale from 1 to 5, with one being "strongly disagree" and 5 being "strongly agree."

Table 2

Mean scores for sense of belonging to an academic department by groups (Scale = 1 to 7)

Groups	Mean	SD	F
Gender			
Female	4.0	1.8	8.89*
Male	5.3	1.6	
Age			
17-22	3.9	1.7	.05
>25	3.8	1.8	
Race			
Minority	3.8	1.7	.10
Majority	3.9	1.7	
Residence			
Family Home	3.7	1.7	37.84**
With Peers	4.1	1.7	
Student status			
Freshman	3.7	1.7	13.96**
Sophomore	3.5	1.6	
Junior	3.9	1.7	
Senior	4.3	1.8	

*p <.005. **p <.001.

Table 3

Mean scores for sense of belonging to general support network by groups (Scale=1 to 7)

Groups	Mean	SD	F
Gender			
Female	5.7	1.6	18.48**
Male	5.3	1.6	
Age			
17-22	5.6	1.5	5.73
>25	5.3	1.8	
Race			
Minority	5.0	1.6	10.50*
Majority	5.6	1.8	
Residence			
Family home	5.5	1.6	10.36*
With peers	5.6	1.5	
Student status			
Freshman	5.4	1.6	2.53
Sophomore	5.4	1.6	
Junior	5.5	1.6	
Senior	5.7	1.5	

*p<.005 **p<.001

Table 4

Stepwise multiple regression analyses of individual student characteristics and departmental climate variables on sense of belonging to a department (N=1662)

Step	Variable	R	R2	R2cha	Beta	F(3,1658)
1	Unity	.523	.275	.275*	.451	321.8*
2	Status	.541	.292	.017*	.140	46.2*
3	Activity	.548	.301	.008*	.098	17.8*
4	Workload	.551	.303	.002	-.042	3.6
5	Prop-female stu.				.000	1.8
6	Prop-Female fac.	.551	.304	.001	.032	0.1
7	Bias				.000	0.5
8	Gender in curric				-.017	1.8
9	Respect	.552	.305	.001	.034	1.63

*p<.001

Table 5

Intercorrelations among individual and climate characteristics entered into the stepwise regression analysis (N=1662)

	Bel	Sta	Uni	Act	Bias	Curr	Resp	Wkld	PF
Status	.148								
Unity	.524	.028							
Activi	.322	-.037	.472						
Bias	-.144	.033	-.259	-.143					
Curric	.059	-.029	.117	.057	-.255				
Respect	.274	.010	.446	.283	-.433	.245			
Wklod	-.162	.003	-.214	-.148	.256	-.127	-.332		
PFac	.065	-.048	.075	.072	-.098	.344	.099	-.093	
PStu	.058	.024	.082	.062	-.098	.280	.129	-.091	.434

Note. Due to large N, meaningful significance levels could not be determined.

Table 6

Multivariate significance tests on unity, activity, gender-bias, gender-in-curriculum, respect, workload, departmental belonging, proportion of female students, and proportion of female faculty by student gender, major area of study and their interaction

Effect	Wilks Lambda	Approx. F	Df	Significance
Gender	.935	2.357	10,304	<.05
Department	.421	46.721	10,304	<.001
Department x Gender	.926	2.70	10,304	<.01

Table 7

Univariate and Stepdown tests of gender, major and their interaction on nine variables representing departmental climate and sense of belonging

IV	DV	Univariate f	df	Stepdown f	df
Gender	Belonging	0.255	(1,314)	0.254	(1,314)
	Unity	0.167	(1,314)	0.038	(1,313)
	Activity	0.005	(1,314)	0.061	(1,312)
	Gender bias	10.793a	(1,314)	11.522**	(1,311)
	Gender curric	1.678	(1,314)	0.036	(1,310)
	Respect	1.343	(1,314)	0.008	(1,309)
	Workload	0.200	(1,314)	0.133	(1,308)
	Fem. Student	2.302	(1,314)	2.475	(1,307)
	Fem. Faculty	4.324	(1,314)	6.469*	(1,306)
Dep't	Belonging	4.814	(1,314)	4.814*	(1,314)
	Unity	13.432a	(1,314)	8.768**	(1,313)
	Activity	28.553a	(1,314)	17.332***	(1,312)
	Gender bias	15.206a	(1,314)	8.257**	(1,311)
	Gender curr	152.040a	(1,314)	110.853***	(1,310)

(table continues)

Table 7 continued

IV	DV	Univariate f	df	Stepdown f	df
	Respect	30.517a	(1,314)	2.865	(1,309)
	Workload	18.042a	(1,314)	2.239	(1,308)
	Fem. Student	212.755a	(1,314)	114.818***	(1,307)
	Fem. Faculty	150.563a	(1,314)	32.729***	(1,306)
Gender	Belonging	0.003	(1,314)	0.003	(1,314)
x	Unity	2.278	(1,314)	2.994	(1,313)
dep't	Activity	0.091	(1,314)	0.856	(1,312)
	Gender bias	5.587	(1,314)	7.550*	(1,311)
	Gender curric	0.412	(1,314)	2.308	(1,310)
	Respect	0.103	(1,314)	0.027	(1,309)
	Workload	1.842	(1,314)	0.861	(1,308)
	Fem. Student	0.146	(1,314)	0.111	(1,307)
	Fem. Faculty	8.206a	(1,314)	9.193**	(1,306)
	Fem. Faculty	4.324	(1,314)	6.469	(1,306)

a Significance level cannot be evaluated but would reach p<.001 in univariate context.

*p<.05 **p<.005 ***p<.001

Table 8

Marginal and Cell Means for Dependent Variables with Significant Stepdown F (SD in parentheses)

Gender	Female	Male
Bias	1.9(.79)	1.8(.70)
Prop F fac	3.6(1.15)	2.0(1.14)
	N=183	N=190

Department	F	M
Belonging	3.7(1.15)	2.0(1.14)
Unity	2.9(0.89)	2.4(0.91)
Activity	2.5(0.74)	1.9(0.85)
Gender-Bias	1.7(0.67)	1.9(0.81)
Gender-Curric	3.5(0.75)	2.4(0.55)
Prop F stud	4.3(1.11)	2.4(0.95)
Prop F fac	4.0(1.40)	1.7(0.87)
	N=180	N=200

Department	F		M	
Gender	Female	Male	Female	Male
Bias	1.8(0.69)	1.7(0.63)	2.5(1.02)	1.8(0.72)
Prop F fac	4.2(1.37)	3.4(1.46)	1.6(0.84)	1.7(0.91)
	N=148	N=35	N=29	N=161